DEPARTMENT OF ENVIRONMENTAL CONSERVATION

AIR QUALITY CONTROL CONSTRUCTION PERMIT

Permit No.: 079CP02 **Date: Proposed – December 29, 2004**

The Department of Environmental Conservation (Department), under the authority of AS 46.03, AS 46.14, AS 46.40, 6 AAC 50, 18 AAC 15, and 18 AAC 50.315, issues an Air Quality Control Construction Permit to the Permittee listed below.

Operator and Permittee:	**Alyeska Pipeline Service Company** 900 E. Benson Blvd. Anchorage, AK 99508
Owner:	Owners of the Trans-Alaska Pipeline System
Stationary Source:	**Trans-Alaska Pipeline System Pump Station 9**
Location:	Latitude: 63º 55’ 53” North; Longitude 145º 45’ 59” West
Physical Address:	Section 27, T11S, R10E, Umiat Meridian, Alaska
Permit Contact:	Don Mark Anthony (907) 450-7652

The Department authorizes the Permittee to install three reciprocating internal combustion engines (RICE) at Pump Station 9 as part of the **Strategic Recongifuration Project**.

This permit satisfies the obligation of the Permittee to obtain a construction permit as set out in AS 46.14.130. As required by AS 46.14.120, the Permittee shall comply with the terms and conditions of this construction permit.

This stationary source is classified under 18 AAC 50.300(c)(1). The project is a modification classified under 18 AAC 50.300(h)(2).

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John F. Kuterbach, Manager
Air Permits Program

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Abbreviations/Acronyms

AAC .....Alaska Administrative Code
ADEC.....Alaska Department of Environmental Conservation
APSC.....Alyeska Pipeline Service Company
AS.....Alaska Statutes
ASTM.....American Society of Testing and Materials
CEMS.....Continuous Emission Monitoring System
C.F.R. .....Code of Federal Regulations
COMS.....Continuous Opacity Monitoring System
DLE .....Dry Low Emissions
EMS.....Environmental Management System
EPA .....Environmental Protection Agency
HHV .....Higher heating value
MACT .....Maximum Achievable Control Technology
mr&r.....monitoring, recordkeeping, and reporting
NA .....Not Applicable
NAICS .....North American Industry Classification System
NESHAPS .....National Emission Standards for Hazardous Air Pollutants
NSPS .....New Source Performance Standards
PS .....Performance specification
PS 9 .....Pump Station 9
PSD.....Prevention of Significant Deterioration
SIC.....Standard Industrial Classification
SN.....Serial Number
TBD.....To Be Determined

Units and Measures

bhp.....brake horsepower or boiler horsepower [1]
gr./dscf.....grains per dry standard cubic feet (1 pound = 7,000 grains)
dscf .....dry standard cubic foot
gph.....gallons per hour
kW .....kiloWatts
kW-e.....kiloWatts electric[2]
mmBtu.....million British Thermal Units
ppm.....parts per million
ppmv.....parts per million by volume
tph.....tons per hour
tpy.....tons per year
wt%.....weight percent

Pollutants

CO .....Carbon Monoxide
HAPS.....Hazardous Air Pollutants
H_2S .....Hydrogen Sulfide
NO_X .....Oxides of Nitrogen
NO_2.....Nitrogen Dioxide
NO .....Nitric Oxide
PM-10.....Particulate Matter with an aerodynamic diameter less than 10 microns
SO_2 .....Sulfur Dioxide
VOC .....Volatile Organic Compound

[1] For boilers: One boiler horsepower = 33,472 Btu-fuel per horsepower-hour divided by the boiler's efficiency. For engines: approximately 7,000 Btu-fuel per brake horsepower-hour is required for an average diesel internal combustion engine.
[2] kW-e refers to rated generator electrical output rather than engine output

Section 1 Permit Terms and Conditions

Emission Unit Inventory and Description

1. Authorization. The Permittee may install Emission Units 10, 11, and 12 listed in Table 1, or alternative units as described in condition 1.1, at this stationary source in accordance with the terms and condition of this permit and the original construction permit application and subsequent submittals listed in Section 2. Upon installation of any Emission Unit 10 through 12, the Permittee shall limit hours of operation of existing Unit No. 8 as indicated in condition 2.

Table 1 - Construction Permit Emission Unit Inventory[a]

No.	Type	Make/Model	Fuel	Rating/Size	Action
8	Firewater Pump	Cummins N-855F	Distillate Oil	400 kW	Modify
10	Reciprocating Internal Combustion Engine	Caterpillar 3516B	Diesel	2,250 kW	Install
11	Reciprocating Internal Combustion Engine	Caterpillar 3516B	Diesel	2,250 kW	Install
12	Reciprocating Internal Combustion Engine	To Be Determined (TBD)	Diesel	65 kW-e	Install

Table Notes:
[a] Except as noted elsewhere in this permit, the information in this table is for identification purposes only.

1.1 If the Permittee elects to install an alternative to the units listed in Table 1, the alternative unit shall be of equal or lesser rating/size than the unit it is replacing in Table 1. At least 30 days before installation of the alternative unit, submit to the Department's Fairbanks office a demonstration that the maximum emission rates of NO_X, CO, PM-10, and VOC for the alternative unit are equal to or less than those from the unit it is replacing.

1.2 At least five days before initial startup[3] of Emission Units 10 through 12 or alternative units, submit the following to the Department's Fairbanks office:

a. vendor specification sheets that identify the unit type, make and model (including model number), serial number, and rating/size; and

b. the installation date and estimated date of startup.

[3] *Initial Startup* means when the emission unit is first fired.

1.3 Unless an extension is granted by the Department in writing as indicated in condition 1.4, decommission[4] existing Emission Units 1 through 7 listed in Table 1 of initial Operating Permit No. 079TVP01 within 270 calendar days after actual initial startup of any Emission Unit 10 through 12 or alternative unit. During the 270 day "startup period":

a. do not operate any of the new Emission Units 10 through 12, or alternative units, concurrently with Emission Units 1 through 7, except during start-up, shut-down, or system performance testing of new Emission Units 10 through 12;

b. for any time any new Emission Unit 10 through 12 or alternative unit is operated, record the emission unit number, startup time and date, shutdown time and date, duration of operation, and whether any existing Emission Unit 1 through 7 operated concurrently; and

c. if an existing Emission Unit 1 through 7 operates concurrently with new Emission Units 10 through 12 or alternative unit, include the operational mode of each new Emission Unit 10 through 12 or alternative unit with the information recorded in condition 1.3b, and if the operational mode is other than startup, shutdown, or performance test, report as a permit deviation under condition 46 of initial Operating Permit No. 079TVP01.

1.4 The Department may allow an extension of the "startup period" for due cause. Submit a request for an extension in writing to the Department's Fairbanks office within 240 days of initial startup of any Emission Unit 10 through 12 or alternative unit. Include a description of the reason for the extension. The Department will grant an extension of up to 30 days if the Department finds due cause exists.

1.5 Include with the next operating report required by condition 48 of initial Operating Permit No. 079TVP01:

a. the actual initial startup dates for each Emission Unit 10 through 12 or alternative units;

b. the decommissioning dates for each Emission Unit 1 through 7; and

c. copies of the notifications and records required by conditions 1.1, 1.2, and 1.3.

[4] *Decommission* means the fuel systems and generator electrical leads have been disconnected.

Ambient Air Quality Protection Requirements

2. Operational Limits (NO_X, SO_2, PM-10). The Permittee shall restrict operating hours of Emission Units 8, 10, 11, and 12 to no more than the limits listed in Table 2 to protect ambient air quality.

Table 2 – Operating Hour Limits[a]

Emission Unit No.	Limit in hours
8	10 hours per calendar day
10 and 11, combined	11,200 per 12 consecutive months
12	300 per 12 consecutive months

2.1 Using an hour totalizer accurate to within two percent, monitor and record total hours of operation for

a. Unit 8 on a daily basis;

b. Units 10 and 11, combined, on a monthly basis; and

c. Unit 12 on a monthly basis.

2.2 By the 15th of each month, add monthly total for Units 10 and 11 combined, and Unit 12 individually, to previous 11 months to get 12 consecutive month total.

2.3 Report according to condition 46 of initial Operating Permit No. 079TVP01 if any daily or 12 consecutive month total exceeds a limit in Table 2.

2.4 Include copies of records required under conditions 2.1 and 2.2 with the operating report for that period required under condition 48 of initial Operating Permit No. 079TVP01.

3. Fuel Sulfur (SO_2). The Permittee shall limit the diesel fuel sulfur content for Emission Units 10, 11, and 12 to no more than 0.24 percent by weight.

3.1 Monitor according to condition 5.2a, 5.3b, and 5.3c of initial Operating Permit No. 079TVP01.

3.2 Report according to condition 46 of initial Operating Permit No. 079TVP01, any time the diesel fuel sulfur content exceeds 0.24 percent by weight.

Owner Requested Limits to Avoid Project Classification as a PSD-Major Modification

4. Oxides of Nitrogen (NO_X) Limit. The Permittee shall

a. comply with operating hour limits listed in Table 2;

b. limit the emissions of NO_X from Emission Units 10 and 11 to no more than 396.5 tons in any 12 consecutive months; and

4.1 By the 15th of each month, calculate and record the NO_X emissions for the previous month and the total NO_X emissions for the previous 12 consecutive months for Emission Units 10 and 11, combined, using Equation 1.

Equation 1 $$NO_X = \frac{ER_{NOX} \times hrs}{0.87 \times 2{,}000}$$

Where:
- NO_X = NO_X emissions in tons per month;
- ER_{NOX} = 61.6 lb NO_X per hour[5]
- hrs = Unit 10 and 11 combined operating hours from condition 2.1b; and
- 0.87 = humidity correction factor at PS 9[6].

4.2 Report as excess emissions under condition 46 of initial Operating Permit 079TVP01 if the 12 consecutive month total NO_X emissions calculated under condition 4.1 exceed 396.5 tons.

4.3 Report under condition 48 of initial Operating Permit No. 079TVP01 the monthly and 12 consecutive month total NO_X emissions for Emission Units 10 and 11.

State Emission Standards

5. Visible Emissions. The Permittee shall not cause or allow visible emissions, excluding condensed water vapor, emitted from Emission Units 10 through 12 to reduce visibility through the exhaust effluent by any of the following:

a. more than 20 percent for a total of more than three minutes in any one hour;

b. more than 20 percent averaged over any six consecutive minutes.

6. Particulate Matter (PM). The Permittee shall not cause or allow PM emissions from any Emission Unit 10 through 12 to exceed 0.05 grains per dry standard cubic foot (gr/dscf) of exhaust gas corrected to standard conditions and averaged over three hours.

[5] Vendor data, APSC construction permit application for the strategic reconfiguration of PS 9, September 2004, page 5 of Appendix B.
[6] APSC construction permit application for the strategic reconfiguration of PS 9, September 2004, page 2-19.

7. Sulfur Compound Emissions. The Permittee shall not cause or allow sulfur compound emission, expressed as SO_2, from any Emission Unit 10 through 12 to exceed 500 ppm averaged over three hours.

Section 2 Permit Documentation

September 8, 2004 Letter from Gregory T. Jones, APSC, to Jim Baumgartner, ADEC, with an application for an Air Quality Control Construction Permit.

November 3, 2004 Letter from Pete Miller, The RETEC Group, to Alan Schuler, ADEC, ambient modeling supplement.